

# WATER QUALITY REPORT

## *Your Drinking Water*



The City of Redmond is proud to present this report on your drinking water.

Safe public drinking water is something we all expect and deserve. In Redmond our sources of supply are pure and plentiful, but also sensitive and vulnerable. The *Wellhead Protection Program*, the *Source Improvement Project*, and water facility and security upgrades are examples of our commitment to preserving the quality and quantity of this precious resource.

In this report you will learn where your water comes from and what's in it. You will learn how it is protected, treated and monitored. And you'll learn how you can become involved in decisions affecting your drinking water.

*John Marchione*  
Mayor John Marchione



**SAFE DRINKING WATER IS OUR HIGHEST PRIORITY!**

*"Water is life's matter and matrix, mother"*



**THE CITY OF REDMOND HAS A HYBRID WATER SYSTEM.  
WHERE YOUR WATER COMES FROM DEPENDS ON WHERE YOU LIVE.**



Tolt Watershed

Redmond City Wells

## THE TOLT WATERSHED

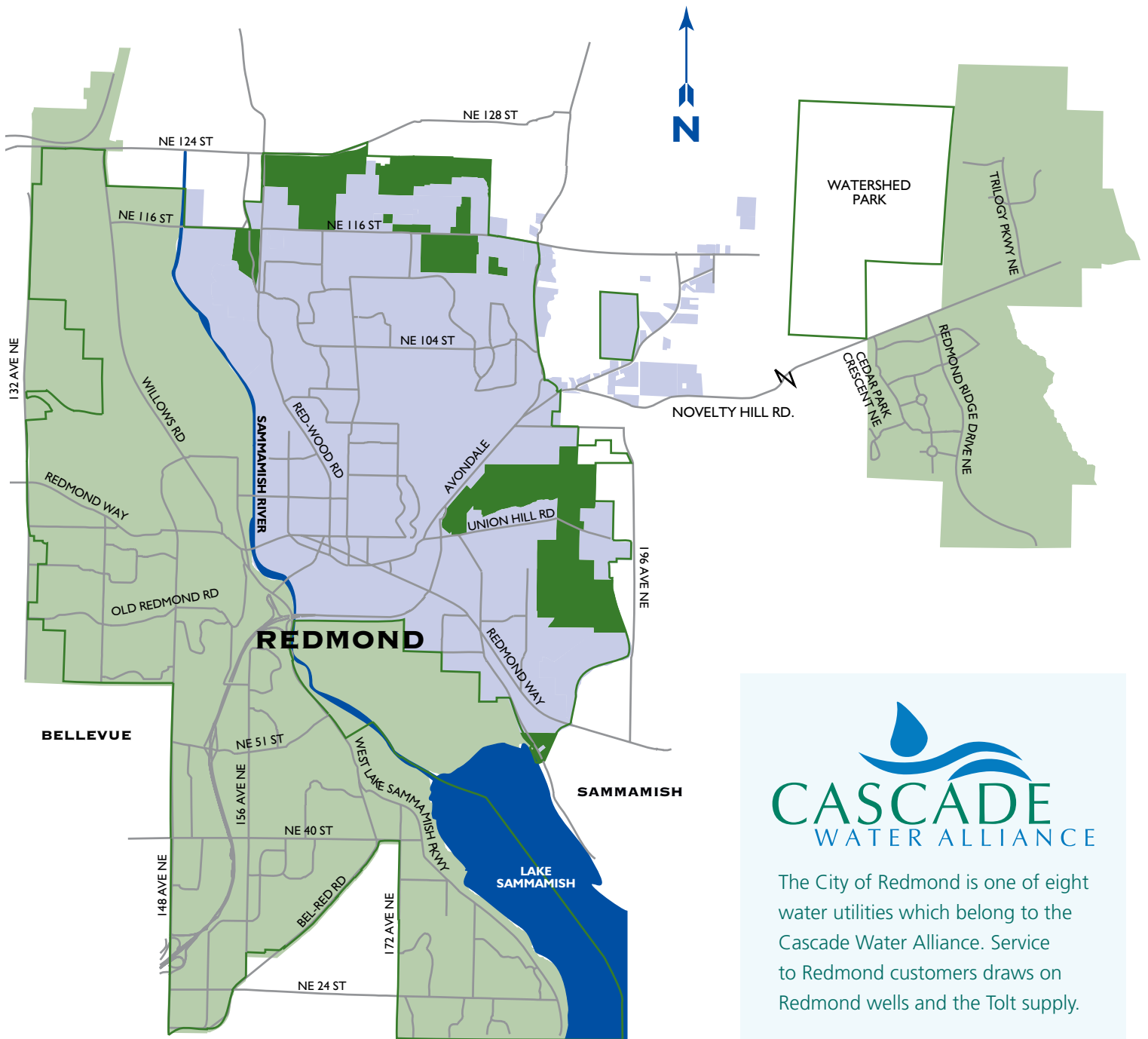
Residents on the west side of Lake Sammamish and the river, and in Redmond Ridge and Trilogy are served water that comes from the Tolt Watershed in the Cascade Mountains.

## THE GROUNDWATER SYSTEM

Residents east of the lake and river are supplied groundwater from the City's well system. Depending on demand conditions, Tolt water may be blended with the groundwater.

*and medium. There is no life without water."*

—Albert Szent-Gyorgyi, Biochemist and Nobel Prize winner



## WHERE DOES MY WATER COME FROM?

Tolt Watershed Water

Groundwater

Private Well Water



South Fork of the Tolt River

# THE TOLT WATERSHED

## From the Cascade Mountains to Your Tap

**T**he Tolt Reservoir and Watershed are located 15 miles east of Redmond in the Cascade Mountains. Rivers, streams and snowmelt are impounded here to make up the reservoir supply. The water travels through a supply pipeline to Redmond and other Eastside cities and water districts on its way to Seattle. The Watershed and pipeline are owned by the City of Seattle. Redmond, as a member of the Cascade Water Alliance, buys this water and both cities monitor and test it to maintain quality.

### Watershed Protection

The Tolt Watershed covers nearly 14,000 acres and is closed to public access. Seattle's aggressive watershed protection plan safeguards the water supply from degradation and human intrusion. However, according to the State Department of Health, all surface waters in Washington are given a susceptibility rating of "high" regardless of whether contaminants have been detected. Contamination that might occur would most likely be from soil erosion or animal activity.

### Treatment

Water treatment of the Tolt supply consists of chlorine disinfection, fluoridation for dental health, and mineral additives (calcium oxide and sodium bicarbonate), which help reduce the water's natural corrosive effect on plumbing. A filtration and ozone treatment facility has been in operation since 2001. Filtration removes organic material and makes the water clearer. Ozone kills tough pathogens like giardia and cryptosporidium. These improvements also mean less chlorine is needed for disinfection.



Tolt Watershed

All compounds from the Tolt System meet strict federal and state standards.

## 2007 WATER QUALITY DATA—TOLT SYSTEM

Detected Compounds	Units	Levels		EPA Limits		Typical Sources
		Average	Range	MCLG	MCL	
FLUORIDE	ppm	1.0	0.2–1.1	4	4	Additive to promote dental health
TURBIDITY	NTU	0.06	0.2–1.1	NA	TT	Soil runoff
TTHM	ppb	35.0	26–47	NA	80	By-products of chlorination disinfection
HAA5	ppb	26.9	18–47.8	NA	60	By-products of chlorination disinfection
CHLORINE	ppm	0.50	0.1–1.2	NA	4 MRDL	Additive that kills germs

**MCLG** (maximum contaminant level goal): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.

**MRDL** (maximum residual disinfectant level)

**MCL** (maximum contaminant level): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.

**PPM** (Parts Per Million) = 1 ppm = 1 mg/l

# THE GROUNDWATER SYSTEM

## *Buried Treasure*

In Redmond, east of the Sammamish River, there are underground, water bearing formations called aquifers. Over the past 50 years these aquifers have supplied nearly 40% of Redmond's drinking water. In 2007, the City's wells pumped 880 million gallons from the aquifers. This resource is listed by the Department of Health as having high vulnerability to potential contamination, because the aquifers are only 50 feet deep.

### Groundwater Protection

In 2003, Redmond's City Council passed the Wellhead Protection Ordinance. Shortly thereafter, the Wellhead Protection Program was established as the City's lead agency in the effort to protect our groundwater.

Wellhead Protection staff help prevent pollution and help protect our groundwater by:

- Collecting hazardous materials data and visiting businesses

to help identify and eliminate sources of pollution that could contaminate the groundwater.

- Reviewing development proposals to ensure that groundwater will not be adversely impacted.
- Collecting groundwater samples and water levels in monitoring wells throughout the City and sharing the results with the Public Works Water Quality Office.

To learn more, contact Wellhead Protection staff at: [groundwater@redmond.gov](mailto:groundwater@redmond.gov) or 425-556-2756.

### Treatment

Redmond groundwater is treated with three common drinking water additives: sodium fluoride, chlorine disinfection, and sodium hydroxide. Fluoride contributes to dental health. Chlorine acts as a safety net against disease causing germs called pathogens. Sodium hydroxide raises the pH of the water, thereby making it less corrosive to household plumbing. The City is currently phasing out the sodium hydroxide in favor of air stripping.



Dave Reese, Lead Water Technician, inspects the SE Redmond Water Tank

All compounds from the Groundwater System meet strict federal and state standards.

## 2007 WATER QUALITY DATA—GROUNDWATER SYSTEM

Detected Compounds	Units	Levels		EPA Limits		Typical Sources
		Average	Range	MCLG	MCL	
FLUORIDE	ppm	1.07	0.74–1.5	4	4	Additive to promote dental health
NITRATE	ppm	1.26	0–2.4	10	10	Erosion from natural deposits
TTHM	ppb	21.5	0–40	NA	80	By-products of chlorine disinfection
HAA5	ppb	9.8	0–36.2	NA	60	By-products of chlorine disinfection
CHLORINE	ppm	0.54	.01–1.13	NA	4 MRDL	Additive that kills germs

PPB (Parts Per Billion) = 1 ppb = 1 ug/l

NTU A measurement of water clarity. High turbidity can interfere with disinfection.

T.T. (treatment technique): A required process intended to reduce the level of a contaminant in drinking water.

TTHM (total trihalomethane): disinfection byproducts.

HAA5 (Haleoacetic acid): disinfection byproducts.

NA Not Applicable.

Well #2, Anderson Park

# 2007 ANNUAL WATER USE EFFICIENCY PERFORMANCE REPORT

Novelty Hill Water Tank

Redmond held a public hearing as required by the Washington State Department of Health, on October 16, 2007 to discuss and set Redmond's Water Use Efficiency Goal. The final goal states that over the next 6 years (Jan. 2008–Dec. 2013) Redmond will save 178,000 gallons of water per day during the fall and winter seasons and 245,000 gallons per day during the summer peak season (June–September) each year. During 2007, Redmond's average fall and winter consumption

Redmond is a fully metered water system, with leakage calculated to be 2.14%, well below the maximum 10% Water Use Efficiency Rule maximum.

Redmond's water system is divided among four types of meter classes to service our customers: single-family (SF) residential; multi-family (MF); commercial/industrial (COMM); and irrigation (IRR) (see Chart 2, below, for annual consumption by class). The SF program saved an average of

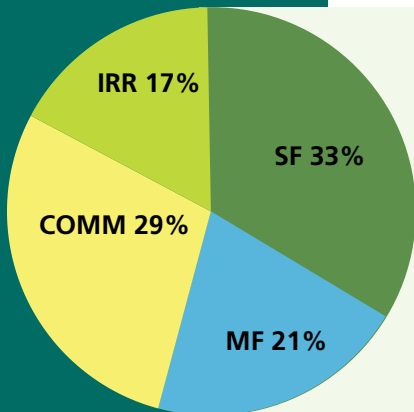
Through this cooperative alliance, Redmond and its partners selected programs that are cost effective and appropriate for each agency's customers.

In addition, Redmond supports all its programs with education, outreach and marketing. This includes both our adult and youth audiences. Youth programs for grades K-12 are reviewed and approved by the Lake Washington School District. We work with and share the costs for these programs with regional partners that share service areas within the school district. During an average year, we reach more than 2,000 students.

For SF and MF customers, we provide both indoor and outdoor programs, many with rebate opportunities, to help customers save water. This includes irrigation rebates.

For COMM customers, we also provide a variety of rebates, and work with new technologies to reduce their water use.

Redmond will report on its progress towards meeting its goal in next year's Water Conservation Report.



**Chart 2**  
2007 Total Consumption Average by Customer Type

- 33% 8,190 Single Family (SF) connections averaged 61,259 gallons per connection
- 21% 13,305 Multi-Family (MF) units averaged 36,419 gallons per unit
- 29% 1,124 Commercial (COMM) accounts averaged 598,570 gallons per connection
- 17% 543 Irrigation (IRR) customers averaged 751,221 gallons per connection

was 6,520,473 gallons. Average summer peak season daily consumption was 9,056,630 gallons. Overall conservation savings was 17,732 gallons per day (see Chart 1, below).

16,904 gallons per day—or 96% of all water saved!

Redmond is a member of the Cascade Water Alliance (Cascade) and participates in its shared, regional programs.

**Chart 1**

## 2007 CWA—REDMOND CONSERVATION PROGRAM

Customer Type	Program Measures	Number of Units	Annual Gallons Per Unit Savings	Gallons Per Day Savings	Annual Savings in Gallons
Single Family	Clothes Washer Rebates	413	5,483	6,204	2,264,479
	Irrigation Efficiency Rebates	94	3,600	927	338,400
	Irrigation Audits	19	4,203	219	79,857
	Showerhead Program	3,106	1,497	9,554	4,649,682
Multi-Family	Toilet Replacements	2	6,720	37	13,440
	Irrigation Efficiency Rebates	0	3,600	0	0
Commercial	Toilet Replacements	0	6,720	0	0
	Irrigation Efficiency Rebates	1	3,600	10	3,600
	Commercial Process	2	142,511	781	285,022
TOTAL				17,732	7,345,858

*"If there is magic on this planet, it is contained in water."*

—Loren Eisley,  
anthropologist

# IMPORTANT INFORMATION FROM THE EPA ABOUT ALL DRINKING WATER

**T**he sources of drinking water (both tap and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, and can pick up substances resulting from the presence of animal or human activity.

Substances and contaminants that could be present in source water include:

**Microbes** such as viruses and bacteria, which may come from septic systems, livestock and wildlife.

**Inorganic chemicals** such as salts and metals, which may be naturally occurring or result from urban stormwater runoff, wastewater discharges and farming.

**Pesticides and herbicides** from agriculture, urban stormwater runoff and residential uses.

**Organic chemicals** both synthetic and volatile, which are byproducts of industry and can also come from gas stations, dry cleaners, urban stormwater runoff, and septic systems.

**Radioactive contaminants**, which can be naturally occurring or result from petroleum production or mining activities.

In order to insure the safety of tap water, the EPA regulates the amount of contaminants allowed in public drinking water. The FDA regulates the contaminants in bottled water, which must provide a similar degree of safety.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can

be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.



## Want to get involved?

It's your drinking water and your input is important. Attend and comment at City Council meetings on the first and third Tuesday of the month at 7:30 pm in the Council Chambers, located at 15670 NE 85th St. Agendas for the meetings can be found on the City's website, [www.redmond.gov](http://www.redmond.gov) or posted in the lobbies of City Hall and the Public Safety Building.

## ADDITIONAL INFORMATION

For additional information please contact:

**Redmond Public Works Water Quality Office**  
[www.redmond.gov/insidecityhall/publicworks/utilities/watersystems.asp](http://www.redmond.gov/insidecityhall/publicworks/utilities/watersystems.asp)  
425-556-2847

**Environmental Protection Agency (EPA)**  
[www.epa.gov/safewater](http://www.epa.gov/safewater)  
Safe Drinking Water Hotline:  
1-800-426-4791

**Washington Department of Health (DOH)**  
[www.doh.wa.gov/ehp/dw](http://www.doh.wa.gov/ehp/dw)  
1-800-521-0323

**American Water Works Association**  
[www.drinktap.org](http://www.drinktap.org)  
[www.awwa.org](http://www.awwa.org)



*If you have questions about this report or about your drinking water, contact Tom Fix, Senior Drinking Water Analyst at 425-556-2847 or [tfix@redmond.gov](mailto:tfix@redmond.gov).*



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# KEEPING THE LEAD OUT

There is no detectable lead or copper in any of the sources of Redmond drinking water. However, lead is a serious contaminant and can be found in the water of some homes.

If present, elevated levels of lead can cause serious health

of Redmond is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before

and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline, 800-426-4791, or at <http://www.epa.gov/safewater/lead>. You can also get information from Redmond Water Quality at 425-556-2847.

Redmond's drinking water is treated to minimize corrosion in the home, and Redmond has

## 2006 LEAD AND COPPER CITY-WIDE MONITORING PROGRAM

Compounds & Units	MCLG	90th Percentile Action Level*	90th Percentile Residential Level	# of Homes Exceeding Action Level*	Sources
LEAD (ppb)	0	15 ppb	5 ppb	1 out of 38	Corrosion of household plumbing
COPPER (ppm)	1.3 ppm	1.3 ppm	N.D.	0 out of 38	Corrosion of household plumbing

\* ACTION LEVEL The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City

using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods,

conducted a city-wide monitoring program since 1992. Since then, only 8 of 324 homes tested exceeded the action level (15 ppb) for lead. **The next monitoring program will be in June 2009.**

## WATER QUALITY REPORT TEAM

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# CROSS CONNECTIONS ARE SERIOUS BUSINESS

If you have an irrigation system, fire suppression system, boiler, or even an outdoor garden hose, it is possible to create a cross connection. A cross connection is the ability for contaminated water to flow backwards through your plumbing and into your fresh water supply. Don't contaminate your own drinking water or the public water system. If you are not sure if you have the proper protection on your plumbing system, call us. We can help.

For information about Redmond's Cross Connection Program contact the Public Works Water Quality Division at 425-556-2847.



Typical back-flow protectors are available at hardware stores.

**Este informe contiene informacion muy importante sobre su agua beber. Traduzcalo o hable con alguien que lo entienda bien.**

"本报告含有饮用水问题的重要信息。请人翻译或与懂英文的人交流一下。"

이 보고서에는 식수에 관한 중요한 정보가 담겨있습니다



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